

I claim:

1. A chamber for depositing a conductive material and cleaning a workpiece comprising:

a movable guard adapted to define the chamber into a lower section and an upper section;

a deposition apparatus positioned in the lower section for depositing the conductive material on the workpiece; and

one or more nozzles positioned on the inner walls of the upper section for providing a cleaning solution to the workpiece.

2. A chamber according to claim 1 further comprising a workpiece holder adapted to support the workpiece in the lower and upper sections.

3. A chamber according to claim 2, wherein the workpiece holder is further adapted to move side to side and up and down between the lower and upper sections.

4. A chamber according to claim 2, wherein the workpiece holder is further adapted to rotate about a first axis.

5. A chamber according to claim 1, wherein the deposition apparatus comprises an electro chemical mechanical deposition apparatus.

6. A chamber according to claim 1, wherein the lower section further includes a first set of splashguards extending from the inner walls of the lower section.

7. A chamber according to claim 6, wherein the upper section further includes a second set of splashguards extending from the inner walls of the upper section and positioned above the one or more nozzles.

8. A chamber according to claim 1, wherein the moveable guard is supported

by a guard support.

9. A chamber according to claim 8, wherein the guard support comprises a plurality of cords coupled to a plurality of rollers.

10. A chamber according to claim 9, wherein the moveable guard is adapted to move into and out of the chamber using the guard support.

11. A chamber according to claim 8 further comprising a slit in one of the inner walls and a housing such that one end of the moveable guard can be positioned within the slit and the other end can be positioned within the housing.

12. A chamber according to claim 11, wherein the movable guard is positioned at an angle from a horizontal plane.

13. A chamber according to claim 1, wherein the moveable guard comprises a pair of flaps attached to linkage rollers.

14. A chamber according to claim 1, wherein the moveable guard comprises a flexible material.

15. A chamber according to claim 1, wherein the one or more nozzles are further adapted to provide a dry gas to the workpiece.

16. A chamber for depositing a conductive material and cleaning a workpiece comprising:

a plurality of flaps having top surfaces and adapted to define the chamber into a lower section and an upper section;

a deposition apparatus positioned in the lower section for depositing the conductive material on the workpiece; and

one or more sprayers positioned on top surfaces of the plurality of flaps for

providing a cleaning solution to the workpiece.

17. A chamber according to claim 16 further comprising a workpiece holder adapted to support the workpiece in the lower and upper sections.

18. A chamber according to claim 17, wherein the workpiece holder is further adapted to move side to side and up and down between the lower and upper sections.

19. A chamber according to claim 17, wherein the workpiece holder is further adapted to rotate about a first axis.

20. A chamber according to claim 16, wherein the deposition apparatus comprises an electro chemical mechanical deposition apparatus.

21. A chamber according to claim 16, wherein the lower section further includes an O-ring and a sealing and anti-splash portion.

22. A chamber according to claim 16, wherein the upper section includes one or more nozzles positioned on the inner walls of the upper section for providing the cleaning solution to the workpiece.

23. A chamber according to claim 16, wherein the plurality of flaps are connected to linkage rollers for moving the plurality of flaps from vertical to horizontal or horizontal to vertical positions.

24. A chamber according to claim 16, wherein the upper chamber includes outlet channels for removing the cleaning solution from the chamber.

25. A chamber according to claim 16, wherein the one or more sprayers are further adapted to provide a dry gas to the workpiece.

26. A method of depositing a conductive material on a workpiece and cleaning the workpiece in a chamber, the method comprising the steps of:

lowering the workpiece into a lower section of the chamber;

depositing the conductive material on the workpiece in the lower section of the chamber;

raising the workpiece from the lower section to an upper section of the chamber;

5 positioning a movable guard between the lower section and the upper section; and

cleaning the workpiece in the upper section.

27. A method according to claim 26, wherein the lowering and raising steps comprise the step of providing a workpiece holder, wherein the workpiece holder is lowered and raised using a moveable shaft attached to the workpiece holder.

10 28. A method according to claim 26, wherein the depositing step further comprises the step of depositing the conductive material using an electro chemical mechanical deposition process.

29. A method according to claim 26, wherein the cleaning step further comprises the steps of:

15 spinning the workpiece about a first axis;

providing a cleaning solution to the workpiece; and

drying the workpiece by spinning the workpiece.

30. A method according to claim 29, wherein the providing step further comprises spraying the cleaning solution from a plurality of nozzles positioned on the inner walls of the upper chamber.

31. A method according to claim 29, wherein the moveable guard comprises a plurality of flaps connected to linkage rollers and wherein the providing step further comprises spraying the cleaning solution from a plurality of sprayers positioned in the

upper surfaces of the plurality of flaps.

32. A method according to claim 29, wherein the moveable guard comprises a flexible guard attached to a guard support.

33. A method according to claim 32, wherein the guard support comprises a plurality of cords coupled to a plurality of rollers.

34. A method according to claim 33, wherein the flexible guard is adapted to move into and out of the chamber using the guard support.

35. A method according to claim 29 further comprising a slit in an inner wall and a housing such that one end of the flexible guard can be positioned within the slit and the other end can be positioned within the housing.

36. A method according to claim 29, wherein after the cleaning solution has been provided to the workpiece, the solution is flowed out the chamber using the moveable guard.

37. A method according to claim 29, wherein the drying step further comprises blowing a dry gas to the workpiece.

38. A method according to claim 26, wherein the step of positioning the moveable guard includes the step of positioning the guard at an angle from a horizontal plane.

39. A method according to claim 38, wherein the angle is between 5 -60 degrees.

40. A single containment chamber for depositing a conductive material and cleaning a surface of a semiconductor workpiece comprising a movable guard, the movable guard adapted to split the containment chamber into a lower section and an

upper section such that the newly created upper section does not contain substantially any of the chemicals used in the newly created lower section, and wherein the lower section is used to deposit the conductive material on the surface of the semiconductor workpiece and the upper section is used to clean the surface of the semiconductor workpiece.

5           41.     A single containment chamber according to claim 40 further comprising a workpiece support adapted to support the workpiece, wherein the workpiece support is adapted to move from the lower section to the upper section and from the upper section to the lower section.

10           42.     A single containment chamber according to claim 40, wherein the lower section includes an electro chemical mechanical apparatus for depositing the conductive material on the surface of the workpiece.

            43.     A single containment chamber according to claim 42, wherein the lower section further includes a first set of splashguards extending from the inner walls of the lower section.

15           44.     A single containment chamber according to claim 40, wherein the upper section includes a plurality of nozzles extending from the inner walls of the upper section, the plurality of nozzles being adapted to provide a cleaning solution onto the surface of the workpiece.

20           45.     A single containment chamber according to claim 44, wherein the upper section further includes splashguards extending from the inner walls of the upper section above the plurality of nozzles.

            46.     A single containment chamber according to claim 40, wherein the moveable guard is supported by a guard support.

47. A single containment chamber according to claim 46, wherein the guard support comprises a plurality of cords coupled to a plurality of rollers.

48. A single containment chamber according to claim 47, wherein the moveable guard is adapted to move into and out of the chamber using the guard support.

5 49. A single containment chamber according to claim 40 further comprising a slit in one of the inner walls and a housing such that one end of the moveable guard can be positioned within the slit and the other end can be positioned within the housing.

50. A single containment chamber according to claim 40, wherein the moveable guard comprises a pair of flaps attached to linkage rollers.

10 51. A chamber for depositing a conductive material and cleaning a workpiece comprising:

means for separating the chamber into a lower section and an upper section;

means for depositing the conductive material on the workpiece in the lower section of the chamber; and

15 means for cleaning the workpiece in the upper section of the chamber.

52. A chamber for carrying out at least two processing steps on a workpiece, comprising:

a movable guard adapted to define the chamber into a lower section and an upper section;

20 means for carrying out a first processing step in the lower section of the chamber;

and

means for carrying out a second processing step in the upper section of the chamber.

53. A chamber according to claim 52 further comprising a workpiece holder adapted to support the workpiece in the lower and upper sections.

54. A chamber according to claim 53, wherein the workpiece holder is further adapted to move side to side and up and down between the lower and upper sections.

5 55. A chamber according to claim 53, wherein the workpiece holder is further adapted to rotate about a first axis.

56. A chamber according to claim 52, wherein the first processing step comprises one of depositing on, polishing, etching, and modifying a surface on the workpiece.

10 57. A chamber according to claim 52, wherein the second processing step comprises one of rinsing, cleaning, depositing on, etching, modifying, and drying a surface on the workpiece.

58. A chamber according to claim 52, wherein the moveable guard is supported by a guard support.

15 59. A chamber according to claim 58, wherein the guard support comprises a plurality of cords coupled to a plurality of rollers.

60. A chamber according to claim 59, wherein the moveable guard is adapted to move into and out of the chamber using the guard support.

20 61. A chamber according to claim 58 further comprising a slit in one of the inner walls and a housing such that one end of the moveable guard can be positioned within the slit and the other end can be positioned within the housing.

62. A chamber according to claim 52, wherein the movable guard is positioned at an angle from a horizontal plane.



63. A chamber according to claim 52, wherein the moveable guard comprises a pair of flaps attached to linkage rollers.

64. A chamber according to claim 52, wherein the moveable guard comprises a flexible material.

5 65. A method of carrying out at least two processing steps on a workpiece, the method comprising the steps of:

lowering the workpiece into a lower section of the chamber;

carrying out a first processing step on the workpiece in the lower section of the chamber;

10 raising the workpiece from the lower section to an upper section of the chamber; positioning a movable guard between the lower section and the upper section; and carrying out a second processing step on the workpiece in the upper section.

66. A method according to claim 65, wherein the first processing step comprises one of depositing on, polishing, etching, and modifying a surface on the  
15 workpiece.

67. A method according to claim 65, wherein the second processing step comprises one of rinsing, cleaning, depositing on, etching, modifying, and drying a surface on the workpiece.

68. A method of carrying out at least two processing steps on a workpiece, the  
20 method comprising the steps of:

carrying out a second processing step on the workpiece in an upper section after positioning a movable guard between the upper section and a lower section of the chamber;

repositioning the movable guard such that the workpiece can be lowered into the lower section of the chamber;

lowering the workpiece into the lower section of the chamber;

carrying out a first processing step on the workpiece in the lower section of the  
5 chamber.

69. A method according to claim 68, wherein the first processing step comprises one of depositing on, polishing, etching, and modifying a surface on the workpiece.

70. A method according to claim 68, wherein the second processing step  
10 comprises one of rinsing, cleaning, depositing on, etching, modifying, and drying a surface on the workpiece.

71. A method according to claim 70, wherein the step of etching or modifying further comprises the step of providing a gas to the surface of the workpiece from a group consisting essentially of O<sub>2</sub>, CF<sub>4</sub>, Cl<sub>2</sub>, and NH<sub>3</sub>.

72. A method according to claim 71 further comprising the step of heating the  
15 workpiece while the gas is provided to the surface of the workpiece.